

IN THE SPECIFICATION

Please make the following revisions to the cited Specification paragraphs:

[5] In addition, the need for monitoring refrigerant charge becomes especially acute with the introduction of systems that utilize high pressure refrigerants such as R410A and CO₂. Systems with these refrigerants are more prone to leaks.

[16] In one example, the expansion device 34 is a valve that operates in a known manner to allow the liquid refrigerant to partially evaporate and flow into a conduit 36 in the form of a cold, low pressure refrigerant. This refrigerant then flows through an evaporator 38 where the refrigerant absorbs heat from air that flows across the evaporator coil. Subsequently, cool air cools the desired space as known. The refrigerant exiting the evaporator 38 flows through a conduit 40 to the suction port 24 of the compressor 22 where the cycle continues. In one example, the system 20 may also be used as a heat pump where the just-described flow may be is-reversed as known. Some example systems operate in both modes as known and can be utilized as well.

[19] In one example, the controller 50 automatically determines that the refrigerant amount is too low as soon as a signal is received from the switch 46. In another example, the controller 50 is programmed to determine whether other system characteristics and operating regimes using known techniques may be responsible for the plunger member 42 moving into the fully open position. In this example, the controller determines whether another operating regime, such as the so-called pull-down mode, is the reason for the plunger member 42 being in the fully open position. The controller 50 in this example uses determinations regarding indoor and outdoor temperatures (see sensors 47 and 49) or a system operating pressure as a

check on the reason for the expansion device 34 being in the fully open position. Also, the difference between the low side and high side refrigerant pressures can be taken. Those skilled in the art who have the benefit of this description will be able to choose appropriate criteria to perform a check suitable for their particular situation. Similarly, those skilled in the art who have the benefit of this description will be able to suitably program a microprocessor or other controller to make the appropriate discrimination between a fully open expansion device caused by a decreased refrigerant charge, depending on the particular characteristics of their particular air conditioning or refrigeration system arrangement.

[23] In one example, the controller 50 provides an indication (51), such as a visible message or an audible alarm, that the refrigerant charge is too low.